

**Notice of Allowability**

Application No.

10/726,655

Examiner

Rodney G. McDonald

Applicant(s)

MURAKAMI ET AL.

Art Unit

1753

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 12-5-05.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 1/06, 11/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

Claims 1-7 are allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including a drive device for locating the shield member selectively in a shield position between the vapor source and the holder, and a retracted position shifted from the shield position; a detector detecting turn-on/off of vacuum arc discharge of the vapor source; and a control portion controlling the drive device to locate the shield member in the shield position when the detector detects turn-off of the vacuum arc discharge, and to located the shield member in the retracted position when a time required for stabilizing vacuum arc discharge elapses after the detector detected turn-on of the vacuum arc discharge.

Claims 8-14 are allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including drive device for the shield members; at least one detector detecting turn-on/off of the vacuum arc discharge of the vapor sources, respectively; and a control portion, wherein each of the shield members is movable to and from a position between the corresponding vapor source and a holder supporting the deposition target object, and each selectively in a shield position between the vapor source and the holder, and a retracted position retracted from the shield position, and the control portion controls each of the drive devices to locate all of the shield members in the shield position when at least one of the detectors detects the turn-off of the vacuum arc discharge, and to locate all of the shield members in the retracted position when a time required for stabilizing all the vacuum arc discharges

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elapses after the at least one detector detected the turn-on of the vacuum arc discharge.

Claims 15-19 are allowable over the prior art of record because the prior art of record does not teach a detector detecting turn-on/off of vacuum arc discharge of the vapor source and a control portion controlling the power source device to stop energizing of the solenoid coil when the detector detects the turn-off of the vacuum arc discharge, and to energize the solenoid coil when a time required for stabilizing the vacuum arc discharge elapses after the detector detected the turn-on of the vacuum arc discharge.

Claims 20-24 are allowable over the prior art of record because the prior art of record does not teach the claimed subject matter as claimed including at least one detector detecting turn-on/off of the vacuum arc discharge of the vapor sources, respectively; a control portion, wherein each of the magnetic filters has a solenoid coil to be energized by the at least one power source device for forming a magnetic field, and the solenoid coil forms a magnetic field controlling dispersion of an ionized cathode material produced from the cathode by the vacuum arc discharge to move the ionized material toward the holder, and the control portion controls the at least one power source device to stop energizing of all of the solenoid coils when at least one of the detectors detects the turn-off of the vacuum arc discharge, and to energize all of the solenoid coils when a time required for stabilizing all of the vacuum arc discharges elapses after at least one of the detectors detected the turn-on of the vacuum arc discharge.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP 2002-025794 to Hitachi LTD, U.S. Pat. 5,441,624 to Chan et al., US 2002/139662 to Lee et al. and WO 96/26532 to Shi et al. cited as Y documents in the search reports of October 19, 2005 and December 15, 2005 fail to teach a shield member for a vapor source or vapor sources where a detector detects the turn-on/off of vacuum discharge of the vapor source or vapor sources and a control portion controlling a drive device to locate the shield member or shield members in a shield position when the detector detects turn-off of the vacuum arc discharge, and to locate the shield member or shield members in a retracted position when a time required for stabilizing vacuum arc discharge elapses after the detector detected turn-on of the vacuum arc discharge. These references also fail to teach at least one detector detecting turn-on/off of vacuum arc discharge of the vapor source or vapor sources and a control portion controlling at least one power source device to stop energizing the solenoid coil or coils when the detector detects the turn-off of the vacuum arc discharge and to energize the solenoid coil or coils when a time required for stabilizing the vacuum arc discharge elapses after at least one detector detected the turn-on of the vacuum arc discharge.

U.S. Pat. 5,840,163 to Welty et al. and U.S. Pat. 6,026,763 to Kim et al. cited as X, Y documents in the search report of December 15, 2005 fail to teach at least one detector detecting turn-on/off of vacuum arc discharge of the vapor source or vapor sources and a control portion controlling at least one power source device to stop

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energizing the solenoid coil or coils when the detector detects the turn-off of the vacuum arc discharge and to energize the solenoid coil or coils when a time required for stabilizing the vacuum arc discharge elapses after at least one detector detected the turn-on of the vacuum arc discharge.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rodney G. McDonald  
Primary Examiner  
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